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A.D. 1886, 22<sup>nd</sup> SEPTEMBER. N° 12,075.

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SPECIFICATION  
OF  
GEORGE HENRY LEANE.

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IMPROVEMENTS IN APPARATUS  
FOR THE CONTINUOUS OR INTERMITTENT  
FILTRATION OF SEWAGE, AND FOR  
LIKE PURPOSES.

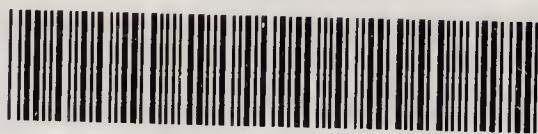
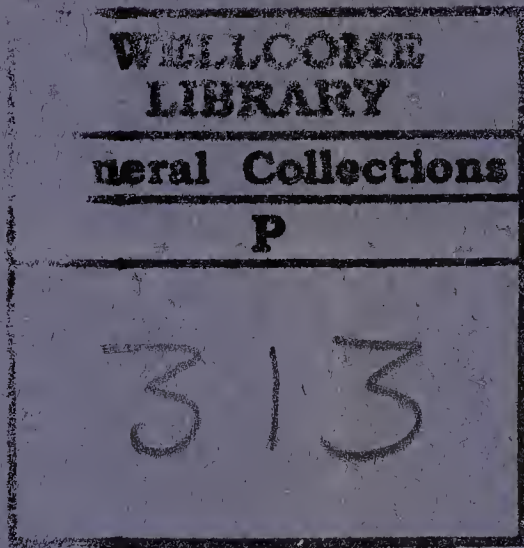
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A.D. 1886, 22<sup>nd</sup> SEPTEMBER. N° 12,075.

### COMPLETE SPECIFICATION.

#### Improvements in Apparatus for the Continuous or Intermittent Filtration of Sewage, and for like Purposes.

GEORGE HENRY LEANE, 21 Queen Anne's Gate, Westminster S.W. Civil Engineer, do hereby declare the nature of my invention for IMPROVEMENTS IN APPARATUS FOR THE CONTINUOUS, OR INTERMITTENT FILTRATION OF SEWAGE, AND FOR LIKE PURPOSES, and in what manner the same is to be performed, to be particularly  
5 described and ascertained in and by the following statement:—

My Invention consists in improvements in apparatus for the continuous, or intermittent filtration of sewage, and for like purposes, and is carried out as follows—

In a filter tank, which may be of any required shape; or dimensions, I place a series of vertical slides, in such a manner as that all the water, sewage or other  
10 liquid, to be filtered must pass through the whole series of such slides, (a series in fact forming a filter in sections) which may consist of any required number.

For the purpose of describing my improvements I have shewn upon the drawing annexed hereto, a series of five filter slides, and two screens.

Fig. 1 is a vertical section of filter, upon line A B.

15 Fig. 2 is a plan, shewing one arrangement of filter for sewage, or other like purposes.

The sewage, or other liquid to be filtered, first passes through the screens *a*, *b*, which consist of wire netting of suitable size for the purpose; thence in rotation through the filters *c*, *d*, *e*, *f*, *g*, of which *c*, and *d*, may be of coarser material  
20 (carbon or other filtering medium) than the others, while *g*, may be of the finest description possible, and may be covered upon the inner side with asbestos, or other filtering cloth.

I prefer to fill the filter frames (hereinafter described more fully in detail) with carbon of a porous nature, but they may be filled with any other loose filtering  
25 medium, or for water filtration only may be constructed of porous carbon slabs. The slides as well as the screens; are interchangeable, and can be made of any desired size. The frames of the slides are composed of timber (I find that "Jarrah" timber is especially suitable for the purpose) but iron, or any other suitable substance can be used if desirable. These frames are covered on both sides by  
30 wire netting as at, *h*, or other open material capable of retaining the carbon (or other filtering medium employed) in position, and are fitted into grooves prepared

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*Leane's Apparatus for the Continuous or Intermittent Filtration of Sewage, &c.*

for them in the filter tank See *i i*, in such a way, as to allow of their being freely drawn up, or forced down ; and at the same time to prevent the escape of the liquid by any other means than passing through the filtering material.

The sides of the filter slides *c, d, e, f, g*, may be covered if desired with a band of asbestos cloth, India rubber, or other suitable soft yielding material, in such a way, 5 as to prevent the leakage of water past the outside parts which engage in the grooves *i, i*, and I find it convenient to construct them with an additional height above the filter, which may be called a trough and is shewn at *k k*, made preferably of timber, this trough being "topped up" or filled with carbon, or other filtering material, to replace any that may be washed through. 10

It will be seen that by my improvements as described, any one of the screens, or frames, may be removed, cleansed, refilled, and replaced, without in any way interrupting the filtering process, while the character of the filter can be thereby modified to suit the nature of the substance, or liquid treated.

My Improvements are moreover specially suited for the rapid elimination, of any 15 kind of suspended matter such as is found in rivers receiving the waste products of factories, dye houses, &c or for the purification of potable waters.

I have now described my invention, and wish it understood that I lay no claim to any special size, shape, or configuration of filter tank as these may be designed to suit the required conditions. What I believe to be novel, and therefore desire to 20 claim is

1. The improved method of continuous filtration substantially as described.
2. In a filter constructed in accordance with my improvements, the removeable screens, and filter frames, arranged in such a manner as that the whole of the sewage, liquid, or water to be clarified, must pass through such screens, or series of 25 screens, and frames for the purpose and in the way and manner described herein.
3. The arrangement of screens in a series, consisting of any desired number, any screen containing any desired thickness of filtering medium. The filtering medium being of any desired quality varying, or not in the various screens forming the series Any one screen may be filled with two, or more qualities of filtering 30 material. The whole series forming one filter of any required aggregate thickness split up into sections, by the screens, any one section of which may be changed without interfering with the remaining sections, or interrupting the process substantially as herein set forth.
4. In a continuous, or intermittent filter for sewage, liquid, potable waters, or 35 like purpose, the method, and arrangement described for removing, cleansing, and recharging the filter slides, with carbon of a porous nature, or other medium, without interrupting the process, as herein set forth.
5. The trough formed by the boards, or other material *k, k*, upon the top of the slides whereby the frames may be "topped up" with the filtering medium 40 substantially as described.

Dated 22nd September 1886.

FRANCIS M. ROGER,  
Applicant's Agent.

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FIG. 1.

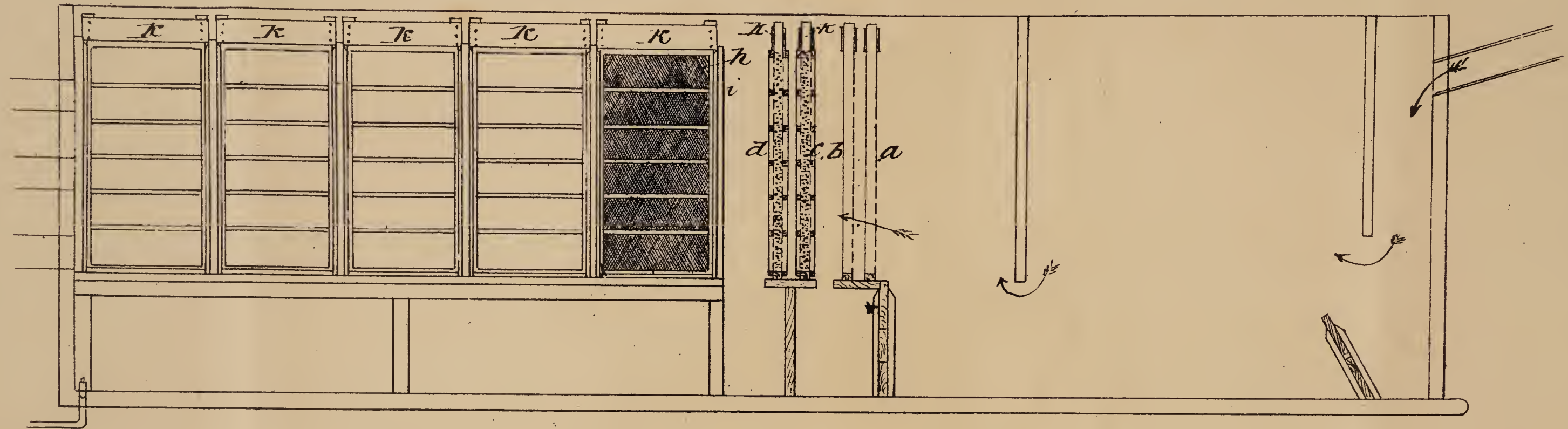


FIG. 2.

